Three Recruitment Scenarios

Recruitment will continue at levels seen in the last 12 years. There's been very little fluctuation in the observed numbers of pueruli coming into the region and post-settlement mortality has likely been constant. Lobsters have a long-lived larval stage and the Keys are probably receiving recruits from a broad swath of the Caribbean basin.

Recruitment will continue into the future at the levels seen in the last 4 years. Recruitment during these four years have been lower than seen during earlier years possibly due to the added mortality on juveniles from a viral disease outbreak and other possible stressors. The lower recruitment levels are four years and may or may not be a long-term trend. If the main cause is a virus we may expect the population to recover to earlier levels of recruitment over time.

Recruitment is closely related to the number of eggs spawned by spiny lobsters in the SE US region. This is perhaps the least likely scenario but needs to be considered. It is meant to represent a scenario where SE US spiny lobster population is a closed population or a scenario where fishery pressure throughout the Caribbean is at levels similar to that of Florida.

These scenarios are not an exhaustive selection of possibilities, but rather represent an illustrative cross-section of possibilities that could possibly occur.

Three F-levels

The $F_{5\%}$ level was the Amendment 2 proposed overfishing definition developed based on common sense and discussion between lobster experts. We want to look at a reasonable range of F and this is the lower end of the range of benchmarks considered for management.

The $F_{20\%}$ level is the current SAFMC overfishing benchmark.

The $F_{30\%}$ level was chosen as a reasonable target for the fishery by SAFMC.

Other

The actual recruitment scenario probably falls somewhere between the constant but fluctuating recruitment scenarios (first two) and the strictly local recruitment scenario (third)

Average harvest in metric tons (percent of runs less than the 2001 fishing season harvest, 2,409 mt). The Beverton-Holt stock-recruit parameters were: steepness = 0.86, Ro = 24.417 million.

Recruitment scenario	$F_{5\%}$ (1.15 yr^{-1})	$F_{20\%}$ (0.49 yr^{-1})	$F_{30\%}$ (0.35 yr^{-1})
1) Last 12 years	3,355 (3%)	3,181 (4%)	2,903 (11%)
2) Last 4 years	2,847 (9%)	2,877 (10%)	2,708 (21%)
3) Spawner-recruit	2,358 (62%)	3,527 (1%)	3,364 (11%)

Total stock biomass in metric tons

Recruitment scenario	$F_{5\%}$ (1.15 yr^{-1})	$F_{20\%}$ (0.49 yr^{-1})	$F_{30\%}$ (0.35 yr^{-1})
1) Last 12 years	10,423	15,596	18,100
2) Last 4 years	8,883	13,923	16,691
3) Spawner recruit	7,153	17,429	21,211